

Short description of GEFS (V11.0) retrospective data

In late May/early June 2015, the NCEP Global Ensemble Forecast System (GEFS) will be updated. In preparation for this upgrade, NCEP has rerun nearly two years GEFS retrospective forecast data, and is offering a sample dataset for our customers' evaluation.

A summary of the scientific details of the GEFS upgrade are listed in Table 1. More details of the upgrade are available at:

http://www.emc.ncep.noaa.gov/gmb/yzhu/html/imp/201412_imp.html

Below are highlights of the retrospective dataset:

- Data is available at:
<http://para.nomads.ncep.noaa.gov/pub/data/nccf/retrospective/gefs/>
- Directory and file:
 - Retrospective runs will be available for May 15, 2013 through the present. There is also the potential to provide data from Summer 2012 if there is interest.
 - *note that the data is being actively sent to the server now, we expect the full dataset to be available by late April*
 - For each day, only the 00Z forecast is available
 - There are about 1495 files in each directory - only the "pgrb2a" files
 - 20 perturbed forecasts (gep01.*, gep02.*, ..., gep20.*)
 - 1 un-perturbed forecast (gec00.*)
 - Ensemble mean (geavg.*)
 - Ensemble spread (gespr.*)
 - 65 lead times (*f00, *f06, *f12, ..., *f384; every 6 hours)
 - Each file contains 80 variables (see table 1)
- Data format: GRIB II
- Data resolution: 1*1 degree global

As this is the first time we are offering retrospective data in this manner, we ask that our users contact NCEP Central Operations and let us know your intended use of this data. This will help us determine the level of interest in providing future retrospective data. Please send an email to Rebecca.Cosgrove@noaa.gov indicating your interest in and intended use of the data.

Table 1: Comparison of operational GEFS (v10.0.0) and GEFS upgrade (V11.0) configurations

	Operational GEFS	Proposed GEFS upgrade (V11.0)
GFS Model	Euler, 2012	Semi-Lagrangian, 2015
Resolution 0-192 h	T254 (52km), L42 (hybrid)	T _L 574 (34km), L64 (hybrid)
Resolution 192-384 h	T190 (70km), L42 (hybrid)	T _L 382 (52km), L64 (hybrid)
Computational Cost	84 nodes (+post processing)	300 nodes, 1st segment 250 nodes, 2nd segment
Execution Time	55 minutes	35 min, 1st segment 30 min, 2nd segment
Output resolution	1 degree x 1 degree	0.5 degree x 0.5 degree for 0-8 days 1 degree x 1 degree for the rest
Output frequency	6-hourly	3-hourly for first 8 days, 6-hourly for the rest

Table 2: 80 variables available in "pgrb2a" retrospective files

Variables	Levels and Categories	Total 80
GHT	Surface, 10, 50, 100, 200, 250, 500, 700, 850, 925, 1000 hPa	11
TMP	2m, 2mMax, 2mMin, 10, 50, 100, 200, 250, 500, 700, 850, 925, 1000 hPa	13
RH	2m, 10, 50, 100, 200, 250, 500, 700, 850, 925, 1000 hPa	11
UGRD	10m, 10, 50, 100, 200, 250, 500, 700, 850, 925, 1000 hPa	11
VGRD	10m, 10, 50, 100, 200, 250, 500, 700, 850, 925, 1000 hPa	11
PRES	Surface, PRMSL	2
PRCP	APCP, CRAIN, CSNOW, CFRZR, CICEP	5
FLUX (surface)	LHTFL, SHTFL, DSWRF, DLWRF, USWRF, ULWRF	6
FLUX (top)	ULWRF (OLR)	1
PWAT	Total precipitable water at atmospheric column	1
TCDC	Total cloud cover at atmospheric column	1
CAPE	Convective available potential energy, Convective Inhibition	2
SOIL/SNOW	SOILW(0-10cm) , TMP(0-10cm down), WEASD(water equiv. of accum. Snow depth), SNOD(surface)	4
Other	850 hPa vertical velocity	1